WYOMING CADASTRAL SURVEY

Proposed Decentralization Plan

1991

WYOMING CADASTRAL SURVEY

DECENTRALIZATION PLAN

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United States Department of the Interior

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SUMMARY

At the current staff and structure it is apparent that Cadastral Survey cannot sustain the current District survey requests while providing Public Land Survey services to the other interested Federal Agencies within Wyoming's jurisdiction.

The need to provide cadastral resurveys for the Casper District in Wyoming's Powder River Basin to support oil, gas, and mineral programs was identified in the early 1980's. In 1986, Cadastral Survey opened the Gillette Project Office. The Gillette Project Office has proved to be an excellent example of how Cadastral Survey can identify the problem, develop a plan and expedite the mission. To date we have completed 95% of the yearly survey requests for the Casper District.

As the Gillette Project Office has proven to be a tremendous success, it has also become apparent that the other Districts within Wyoming have suffered the consequences. Without adequate funding or manpower to support all district survey needs, we conduct as many surveys as possible for the remaining districts on a rotational basis. Based on the statistics provided from FY 86-91, we were able to prepare and complete 4.8% of the requested groups for the Rawlins District, 2.4% for the Worland District, and 7.0% for the Rock Springs District. Based upon this data it is evident we need to consider a decentralization and an increase in manpower to support District Survey requests.

The need for cadastral surveys are overwhelming as affirmed by all Districts. All of the District Managers recognize the need for Cadastral expertise within their districts. Three of the four District Managers would be favorable to providing office space, administrative support, and storage for a Cadastral crew. The states and district personnel involved in this study with district surveyor structures are pleased with the results. The travel costs savings incurred with this type of structure reflect a 100% savings when surveys are performed within reasonable driving distance in the District, and 42% savings when travel is required within the District. This type of structure will enhance relationships of the Cadastral staff with District personnel, local surveyors, and other Federal clients. We can expect a higher quantity and quality of survey returns, and an extended period of field operation. Cadastral can provide continuous support for all District programs in both an official and advisory capacity. With the Directors current emphasis on placing more personnel in the Districts, it is an excellent opportunity to implement this plan.

HISTORY

The original contract surveys in Wyoming took place in the late 1800's, with the majority of these surveys being completed by the early 1900's. Most areas of the state have been originally surveyed excluding, Yellowstone National Park and the more rugged and remote areas within the Bridger Teton and Shoshone National Forests.

During the early 1900's, areas determined to have been fraudulently surveyed under the original contracts required Independent Resurveys executed by the General Land Office (GLO) under the direct system. The majority of these resurveys were conducted in approximately 80 townships in the north-central part of state, with an additional block of approximately 100 townships in the southwest and extreme southwesterly portion of the state.

From about 1930-1946, the GLO conducted both Independent and Dependent Resurveys throughout the state at a reduced rate as needed. In 1946, cadastral survey became a part of the Cadastral Engineering Unit under the newly formed Bureau of Land Management. Cadastral surveys continued to be performed within the state on an as needed basis from a regional office located in Montana. A cadastral surveyor was placed within the State Office (SO) in Cheyenne to oversee requests for cadastral surveys and administer mineral surveys being conducted throughout the state.

In 1963, two service centers located in Portland and Denver were established, providing reimbursable cadastral survey crews for the western states. Cadastral survey crews were placed in the Wyoming State Office in Cheyenne with review and approval authority remaining at the Washington Office (WO).

In 1978, review and approval authority was transferred from the WO to the Denver Service Center (DCS)(401).

In 1982, review and approval authority was transferred from the DSC (401) to individual branch chiefs at the state offices, with reimbursable crews abolished.

Traditionally, from 1978 to 1986, the majority of cadastral surveys requested and reimbursable performed within the jurisdiction of the Wyoming State Office, (Wyoming and Nebraska) have been performed by mobile survey crews based from within the SO.

In 1986, the Gillette Project Office was opened employing six survey crews with the goal of resurveying the mineral-rich Powder River Basin.

INTRODUCTION

The Wyoming Cadastral Survey Program is responsible for creation, marking, defining, retracing or re-establishing the boundaries and subdivisions of the public lands located within Wyoming and Nebraska. This authority is derived from the statutory directive (43 U.S.C. 2) that "The Secretary of the Interior or such officer as he may designate shall perform all executive duties appertaining to the surveying...of the public lands."

The state of Wyoming contains 55,582,024 acres of surveyed land. There are 18,390,697 acres of public land with 11,639,563 acres of mineral estate under private land administered by the BLM. There are approximately 8,774,612 acres of National Forest in Wyoming with an additional 2,327,000 acres of public land administered by other federal agencies excluding the Yellowstone and Grand Teton National Parks. To date, there have been approximately 22,510,000 acres of the original surveys dependently or independently resurveyed. There have been approximately 500 Groups prepared, surveyed and approved.

Cadastral surveys are requested for oil and gas exploration, trespass cases, right-of-way access, archeological location, recreation, range, timber, historic preservation, riparian issues, to support the Geographic Coordinate Data Base, and numerous other reasons. Cadastral Survey has the Public Land Survey Boundary responsibilities for the Bureau of Indian Affairs, National Park Service, Bureau of Reclamation, Fish and Wildlife Service, and the U.S. Forest Service.

The opening of the Gillette Project Office marked a departure from the traditional mobile survey crew operation. The rational employed for developing the project office concept in Wyoming, is very much the same reasoning used for placing surveyors in other areas of the state of which this plan and proposal will explore.

INTRODUCTION

The Wyoming Cadastral Survey Decentralization Plan, began in May of 1991, has involved a lengthy research and analytical process to determine the options regarding restructuring the Branch of Cadastral Survey. The emphasis of this plan involves permanently relocating field surveyors to areas of the state where the bulk of the resurvey work exists. The primary benefits of decentralization would be reduced travel costs and increased productivity. Other benefits are improved communications and expanded interaction between cadastral survey field personnel and District, Resource Area, local surveyors, and other federal agency personnel.

The research portion of this plan involved soliciting answers to a series of questions pertinent to decentralization. These questions were presented to Cadastral Branch Chiefs from states that have previously decentralized. Regional Surveyors from the US Forest Service were also asked to respond to similar questions. District Managers from Wyoming were queried regarding their needs for Cadastral support, availability of office space, future survey and Global Positioning Systems (GPS) applications, and supervisory control issues.

The second portion of this plan involved compiling the pertinent data to make a sound decisions regarding the most applicable locations to place Cadastral Surveyors.

The third element of this plan was to determine what would be required of a Cadastral Surveyor in a decentralized situation. Other elements of this portion involves the supervisory controls needed in a decentralized environment, the funding required and the additional support activities required of the Cadastral Surveyor.

The findings and analysis portion of this plan involves ascertaining the travel savings anticipated. Also explored is where the survey needs exist, what has been successful in other states, and what we hope to achieve by decentralization. This portion also analyzes our past performances in meeting the district survey needs.

The proposal of this plan includes all data and supporting documents necessary to rapidly and uniformly implement this plan. Included with the proposal is a schedule of implementation and future funding requests. Also included is a revised Table of Organization (TO) and a revised position description (PD) for the District Surveyor.

I. RESEARCH THE BENEFITS AND DETRIMENTS OF DECENTRALIZATION

A. Solicit input from Branch Chiefs from states with decentralized structures.

The initial part of my research was to solicit input from Cadastral Branch Chiefs from other states with decentralized organizations. The states of Oregon, California, and the Eastern States Office have surveyors in detached locations for many years. The state of Colorado has recently instituted placing surveyors in BLM District Offices. The Branch Chiefs were presented with a series of seven questions which I feel are pertinent to this plan. These questions and replies are compiled as follows:

1. WHAT ARE THE MAJOR BENEFITS YOUR OFFICE HAS DERIVED UTILIZING DETACHED CADASTRAL FIELD OFFICES.

* Reduced travel costs due to local hires permanent residence of surveyor thereby, reducing overall field costs.

* Field surveyor more in touch with clients and can better service funding agency.

* Enhance working relationships with local surveyors and officials.

* Survey problems/corrections can be handled immediately rather than wait for another crew in the area. The same can be said for rush priorities.

* Surveyor becomes more familiar with local survey conditions.

* All around better public relations, whether with local survey organizations, other agencies, title people, etc.

* Opportunity for better family life, as travel is eliminated.

* If BIA-funded office, can hire tribal members and assist disadvantaged in a positive way.

* Continuous mode of operation (year round) for period of time as determined by MOU with benefitting agency.

* Higher quality and quantity of survey returns.

* Travel dollar reduction 350,000 former less than 200,000 post.

* Many seasonal employees could be hired in none, or only part time travel status.

2. WHAT HAVE BEEN THE DISADVANTAGES YOUR OFFICE HAS DISCOVERED BY UTILIZING DETACHED CADASTRAL FIELD OFFICES?

* Change of key personnel in agency may necessitate a "reselling" of survey program/project office - applies more to other agencies, but could also apply to BLM DO/RA.

* What to do with crew when funding is short in a FY.

* Remote location can make supervisory control difficult, especially with younger/inexperienced surveyors who need more guidance.

* Less communications with office and results in surveyor not feeling he/she is a part of the team also not involved with discussion with other surveyors in SO.

* Limited variety of surveys in a given geographic area can impede development of professional knowledge.

* Decreased field time because more time is spent working on non survey matters for district.

* Easier to take time off during field season in contrast to travel crews, resulting in less production.

* Span of control diminished

* Training not readily available

* Start up costs are high (change of duty station).

* Personnel related matters are more complicated.

* Personnel become less responsive to SO, loss of interaction with SO surveyors have been overcome utilizing annual workshops.

* The field surveyors seem to have developed a lesser devotion to their projects. It use to be that when a field crew was in travel status full time that surveying was a day time job and computations, or reduction of the data was an evening job. In other words a project was almost around the clock activity until the job was field complete. So as a result production has definitely suffered; we do report less mileage than used to be the norm. But this isn't so bad because land surveyors as professionals in the BLM work the same hours as other professionals.

3. **WHAT PERCENTAGE OF YOUR FIELD OFFICES ARE FUNDED EXCLUSIVELY BY REIMBURSABLE FUNDS, BLM FUNDS, OR A COMBINATION OF BLM AND REIMBURSABLE FUNDS?**

* Hard to project some are exclusively Forest Service some are exclusively BLM.

* Project offices under SO are funded entirely by reimbursable dollars, with district offices funded by O&C dollars which is BLM account. Occasionally, project offices will use BLM funds for corrections, priority surveys, or to offset funding shortages.

* All of our project offices are 100 percent reimbursable funding to BLM from other agencies.

* California provided a survey budget breakdown, some offices show a large FS 9800 funding with small SO funds (Carson City), others show a large SO funding with limited 9800 and reimbursable funding (Ridgecrest), others show a mixed bag.

4. DOES YOUR OFFICE HAVE CADASTRAL FIELD OFFICES LOCATED IN BLM DISTRICT OR RESOURCE AREA OFFICES? IF SO, WHAT HAS BEEN THE OVERALL RESPONSE OF DISTRICT MANAGERS AND PERSONNEL?

* Surveyors located within most district offices. District Managers want Cadastral Surveyors! (Totally Positive). DM's that don't have surveyors want them. Districts help fund equipment purchases.

* The five west side districts in Oregon (Salem, Eugene, Roseburg, Medford, and Coos Bay) have cadastral survey personnel permanently assigned to them. Overall, the support for cadastral by DO management has been very good, and cadastral is an integral part of the districts' operation. A lot depends upon the lead surveyor in the district as to the degree of funding and support, which is true in any organization.

* No ES cadastral functions or personnel are located in BLM District or Area offices.

* California has surveyors in 3 district offices and 1 resource area office. Overall the DMs and RAMs have been pleased and favorable to the current arrangements. They know who they can go to for answers to certain questions, and they all feel like they have their own survey group. However, we do not have a surveyor in every RA, and we still have some communication problems with those areas. Some times its hard for them (AMs) to understand why we are working on some other agencies needs when they have just as important a need.

5. IF YOU HAVE CADASTRAL FIELD OFFICES LOCATED IN BLM DISTRICT OR RESOURCE AREA OFFICES, HAVE YOU ENCOUNTERED ANY PROBLEMS REGARDING SUPERVISORY CONTROLS?

* None so far! I think so long as we remain responsive to their needs and work closely with DO and RA staff that this problem should not occur. It could happen, however, where an office might run into an autocratic manager.

* The SO has technical direction/guidance only as surveyors are administratively under district and their supervision. Even though we may think there is a better method of operation for field activities, we don't have a means to implement it except by friendly persuasion and conversation.

* Surveyors are at the mercy of non-survey supervisors as to priorities and schedules of work, resulting in uncompleted jobs at times, assignments to other areas, training etc.

* We have had no problem with supervisory controls whatsoever.

6. HOW ARE THE REQUEST FOR SURVEYS PROCESSED WITHIN YOUR STATE?

* Request for surveys are still processed at the SO.

* For both district and project offices, survey requests are prepared either by or in consultation with lead surveyor. The requests are submitted to the SO each fall in priority order for the preparation of the Special Instructions. During the year, as priorities change or new requests are made, the lead surveyor and surveyor in SO preparing Specials coordinate this work. Under a new concept we are trying this year in certain districts, the district surveyor will research and prepare a draft of the Specials and send them to SO for Final review and typing.

* Request for survey are processed through the Alexandria, Virginia office where all Special Instructions and Assignment Instructions are issued.

* Each DO compiles requests from their various Resource Area Offices and prioritizes this list based on the highest District need. These lists are then transmitted to this office and we attempt to complete at least two of each Districts highest priority projects in any given year. In some cases, we actually complete more than that depending on the size and complexity. Wherever the State Director is placing his highest program emphasis (in CA this would be on the Desert) we try to place or shift our efforts accordingly.

* One nice advantage under the decentralized concept is that our surveyors in the field stations can assist the DOs and RAs in identifying exactly what their need is.

7. **WHAT ARE YOUR POLICIES REGARDING CADASTRAL FIELD CREWS ASSISTING DISTRICT PERSONNEL IN UNOFFICIAL SURVEY SUPPORT ACTIVITIES? WHAT PERCENTAGE OF TIME WOULD YOU ESTIMATE IS SPENT ON THESE ACTIVITIES?**

* Cadastral personnel are not allowed to conduct unofficial cadastral surveys for the district unless they inform the SO. They occasionally take a day and conduct some corner search for district personnel. (I would say 1-2% unofficial) In the winter months surveyors can work on PLSS corner recovery and remonumentation. All district surveyors are issued a blanket set of special instruction for corner remonumentation.

* SO crews do not assist with unofficial activities except to help in needs assessment.

* For district surveyors, the amount of unofficial work can vary from district to district with probably an average of 10% of time spent on road R-O-Ws, administrative surveys between BLM monuments, check trespass, etc.

* Project office surveyors may also get involved on these types of surveys on a very limited basis. More time is spent on explaining survey procedures, checking private surveys and plats, helping with survey correspondence, etc.

* The bottom line is, whoever pays the bills can decide the amount of unofficial work a surveyor does, and it isn't entirely a negative situation as the surveyor(s) become a viable part of the organization and create good PR.

* As stated under item six we reap some benefits in having our personnel assist in the identification of the district or resource area survey needs. In some cases where there was suspected encroachments our surveyor in the area looked at these cases on an individual basis and could verify through an on the ground examination (without survey) if the resource area truly required a survey.

* My policy is that the cadastral survey work has the precedence but our field personnel can assist in unofficial survey support activities on a limited basis. The limited basis being that the work will not detract from their cadastral survey activities and, if the need is excessive (more than a day or so) the district or resources area must fund their time and expenses.

* Time spent doing this type of work is very minimal, far less than 1%. However we have been assisting several districts in identifying Off Highway Vehicle (OHV) easements quite extensively.

I. RESEARCH THE BENEFITS AND DETRIMENTS OF DECENTRALIZATION

B. Solicit input from officials from other federal agencies with decentralized structures.

The U.S. Department of Agriculture, Forest Service is the only other federal agency that employs a significant amount of GS 1373 Land Surveyors. The Forest Service traditionally has surveyors located on forests throughout the United States with technical supervision emanating from the Regional Surveyor from the various regional offices. I solicited input from the regional land surveyors from region 1, 2, and 4, with a series of questions similar to the one presented to the branch chiefs. At the time of finalization of this study I had received one reply from the Forest Service. These questions and replies are compiled as follows:

1. WHAT ARE THE MAJOR BENEFITS YOUR AGENCY HAS DERIVED BY UTILIZING SURVEYORS ASSIGNED TO LOCAL FORESTS?

* The Forests have enjoyed a better working relationship with the Field Office. The relationship allows the ability to respond to a change in need in the program and exchange of information as the project progresses.

2. WHAT HAVE BEEN THE DISADVANTAGES YOUR AGENCY HAS DISCOVERED BY UTILIZING SURVEYORS ASSIGNED TO LOCAL FORESTS?

* To date I know of no disadvantages other than coming up with money to support the Field Office Year round. It works great if there is also survey needs of the BLM, BIA or others to help support the overhead costs.

3. WHAT ARE THE SUPERVISORY CONTROLS ESTABLISHED BY THE REGIONAL OFFICE FOR YOUR FOREST SURVEYORS LOCATED WITHIN LOCAL FORESTS? FOR EXAMPLE, DO FOREST SURVEYORS RECEIVE THEIR ASSIGNMENTS FROM THE REGIONAL SURVEYOR'S OFFICE OR THE FOREST SUPERVISOR ON THE FOREST, OR A COMBINATION OF BOTH?

* The Forest Surveyors receive direction from the Forest. Some Forest programs report to the Forest Engineer others to the Lands Officer. Only technical support and budget advice comes from the RO.

4. HAVE YOU AS REGIONAL SURVEYOR ENCOUNTERED ANY PROBLEMS REGARDING SUPERVISORY CONTROLS?

* I can't answer as I am brand new to the Region and this position. From previous experience as a Forest Land Surveyor there were no problems.

5. IN WHAT MANNER ARE YOUR REQUESTS FOR SPECIFIC CADASTRAL SURVEYS PROCESSED WITHIN YOUR REGION?

* The Forests send in a written request for survey which is then sent to the State Office of BLM. The Forests are responsible for Funding requests from 9800 funds or transfer of Forest Program dollars.

6. WHAT ARE YOUR POLICIES REGARDING CADASTRAL FIELD CREWS ASSISTING FOREST PERSONNEL IN UNOFFICIAL SURVEY SUPPORT ACTIVITIES? WHAT PERCENTAGE OF TIME WOULD YOU ESTIMATE IS SPENT ON THESE ACTIVITIES?

* The only thing I can think of is Marking and Posting of property lines which would vary greatly with the project. Marking and Posting miles is the Target the Forest is responsible for. The Forest Service is mandated to achieve a set target for the dollars.

United States Department of Agriculture | Forest Service | Intermountain Region | 324-25th St. Ogden, UT 84401

Reply to: 7150

Date: January 3, 1992

Mr. James Claflin
Land Surveyor
Gillette Project Office
Bureau of Land Management
P.O. Box 3768
Gillette, WY 82717

Dear Jim:

The following comments are my responses to your request for information regarding your Wyoming Cadastral Decentralization Study. Our organization began to decentralize about 1975. Our initial objective was to place a journeyman level land surveyor on each of the 16 National Forests within the Intermountain Region. Budgets and the shortage of qualified surveyors have prevented us from accomplishing that objective in total. However, through a skill sharing arrangement, those Forests without Land surveyors share with a designated Forest with a land surveyor.

My specific responses are as follows:

1. Primary benefit of having land surveyors located at the Forest level of the organization has been in providing more effective and efficient surveying services. Sensitivity to unique individual Forest needs and problems has dramatically improved. Litigation and/or congressional inquiries involving boundary survey disputes have almost ceased to exist. Conflicts still occur, but we are able to react and work out resolutions much quicker.

2. In a decentralized environment, some surveyors tend to isolate themselves from the mainstream of Forest and Regional policy and program direction. Rather than integrating with other Forest staffs and contributing towards interdisciplinary management, they compartmentalize around singular functional objectives. Just surveying for boundary location is no longer acceptable. Sound land stewardship requires land surveyor input into many complex management issues. Where this attitude exists, there is a continual struggle on the Forest to adequately fund the activity. Personnel selection is critical to establishing a successful program.

3. Technical direction and review are the responsibility of the Regional Office. Direct supervisory controls are at the Forest level where the land surveyor either works under the supervision of the Forest Engineer or the Lands Staff person. Forest or Zone Land Surveyors are given considerable latitude to develop, program, coordinate, and accomplish project work. They also have, as a result of personal State licensure authority, sole responsibility and liability for the certification and recordation of their work. No higher level of review and/or approval is required. Forest Supervisors sign survey plats as accepting on behalf of the Forest Service prior to filing. Quality control is maintained through a system of discretionary peer review and informal periodic Regional Office review.

ATTACHMENT

4. In a few cases some problems have occurred, usually where the supervisor/ employee relationship is less than satisfactory. I have encountered probably the most difficulty in this relationship when trying to provide input into employee performance appraisals or unit program evaluation. Most of the people supervising the land surveyors have little information available to them with which to make fair evaluations of performance, and some quite frankly don't want any. When surveyors are supervised by people who are not surveyors, it is imperative that communications, confidence, and trust are rapidly established and continually maintained. The most effective programs exist where the surveyor is fully "empowered" and is not burdened by excessive supervisory controls.

5. The Forest or Zone Surveyors develop specific projects from requests solicited from District Rangers and Resource Staff Officers. Requests are prioritized and submitted in out-year budgets. Current year budgets are adjusted for changed conditions and finalized at both the Regional and Forest levels.

6. We fully expect those working in the survey activity, at the Forest level, to become a part of that organization not a separate entity. This means being available for fire assignments or being available to act in a variety of non-surveying temporary assignments. We also provide a variety of surveying products and services usually involving topographic surveys or providing survey control on photogrammetric projects. The Global Positioning System (GPS) has also led to a demand for our services in supporting spacial information needs of resource users developing a Geographic Information System (GIS). These other surveying or non-surveying activities are usually paid for by the benefitting function, and do not compromise the basic integrity of our boundary location program.

I hope these comments help you with your study. If you have any further questions, please contact me.

Sincerely,

R. JON LEONARD
Regional Land Surveyor

ATTACHMENT

I. RESEARCH THE BENEFITS AND DETRIMENTS OF DECENTRALIZATION

C. Solicit input from District Mangers within Wyoming regarding decentralization.

The District Managers were asked to respond to a series of five questions which are compiled as follows:

1. WOULD YOU SUPPORT THE IDEA OF LOCATING ONE OR MORE CADASTRAL SURVEYORS AND A SEASONAL CREW IN YOUR DISTRICT OR RESOURCE AREA OFFICES?

* It has short term benefits for the Rawlins District. We have identified a work load for at least five years. However, the district does not anticipate a work load in the future that would warrant a crew to be stationed at Rawlins. One option may be to station a crew in Rock Springs or Rawlins that could service both Districts, if the work load justifies it.

* The district supports the concept of having cadastral surveyors and seasonal crews stations in the District or Newcastle Area Offices.

* All resource areas and most district personnel are in favor of locating cadastral expertise in the district office or in a resource area office. For district-wide coordination, the district office would be the preferable location for a cadastral crew. The district is of the opinion that very little cost savings would result from decentralization due to the national resource character of cadastral work. Travel costs should be reduced but would be offset somewhat by travel to other areas to complete surveys for other agencies. More jobs could be completed within the district with cadastral personnel located at the district and available to tackle projects on very short notice.

* The District will accept cadastral surveyors and season crews at the District Office.

2. WOULD YOU BE WILLING TO PROVIDE A WORK AREA, STORAGE AREA, AND MINIMAL ADMINISTRATIVE SUPPORT FOR A SMALL CADASTRAL STAFF?

* Presently office space is limited and stationing a crew here would add to existing space problems. We do have adequate storage area for materials and one or two vehicles.

* Newcastle and/or Casper District Office could supply a work area, storage area, and minimal administrative support for a small cadastral staff. Buffalo and Platte do not have sufficient space to accommodate any additional people. They do have sufficient storage area available.

* The District can provide a work area, storage area, and administrative support for personnel identified. The Wyoming State Office should expect to provide all of the required survey equipment required for the cadastral crew.

* The District can provide an office space in the Fire Building. There is ample storage space in the wareyard and warehouse. Program coordination, project management, and supervision can be provided by the Assistant District Manager, Operations. The Assistant District Manager, Administration can provide administrative support.

3. IN WHAT AREAS OTHER THAN OFFICIAL CADASTRAL SURVEYS COULD WE PROVIDE SUPPORT FOR YOUR DISTRICT STAFF?

* The areas other than official cadastral surveys where support could be provided are boundary line determination, timber sale area locations, mineral sale locations, hazardous waste site locations and in some situations, easement locations and trespass.

* The District as a whole feels that having a Cadastral expert within the district would provide an excellent opportunity for consultation and advice on the many problems that arise with land management. Many types of work were identified as candidates for cadastral expertise such as recreation access needs, agriculture and occupancy trespass, general access needs for easement acquisition and basic cadastral work such as relocation of corner monuments and delineation of land lines.

* The District has continuous need for cadastral support for the Lands and Minerals Programs. Other programs, such as Access, Recreation, Wildlife, and Range have occasional special requests. Typical request are for corner search and boundary surveys. Land Law examiners and others often need computation for subdivision of sections and clarification of boundary descriptions.

4. GLOBAL POSITIONING SYSTEMS (GPS) ARE BECOMING INCREASINGLY POPULAR FOR CERTAIN RESOURCE MANAGEMENT PURPOSES. DO YOU FORESEE A NEED FOR TECHNICAL SUPPORT FOR YOUR RESOURCE STAFF?

* We are planning to use the Global Position Systems (GPS) because of its potential uses for resource management and we foresee the need for technical assistance. However, we would prefer to have this expertise within the District organization.

* Global Positioning Systems are or will be the normal within very few years. We see a need for technical support for all resource staffs. Training will also be needed for full utilization of any equipment and procedures.

* A major area of support would be GPS expertise which would apply to most resource management programs. Specific areas to benefit are roads, trails, vegetative and study area mapping, special status plant sites, raptor rests, transect locations, archeology sites, leks and many others. GPS combined with GIS technology will be a very valuable tool within the district.

* The District has purchased two GPS units and we plan to implement aggressive utilization of GPS technology. There will be a need for engineering grade surveys to support mining and petroleum engineering analysis.

5. IF CADASTRAL SURVEYORS WERE LOCATED IN YOUR DISTRICT, WE PROPOSE THAT THEY WOULD REMAIN STATE OFFICE PERSONNEL, DO YOU FORESEE ANY POTENTIAL PROBLEMS REGARDING SUPERVISORY CONTROLS?

* If cadastral surveyors were to be located in the District and remain State Office personnel, supervision could be a problem but would depend largely upon the individuals and structure of the crew.

* All people located within an office always work better when under the office manager. This does not mean that it will not work if the cadastral survey people are under the state office. You can have equally good production under either method if the personality of the employee is good.

* Most personnel believe that cadastral personnel in decentralized offices should have supervision and direction from that office with technical oversight remaining at the Wyoming State Office. If located in the district office, the surveyors should be supervised by the ADM, Division of Operations or the District Manager. The local supervisor would recognize the state-wide or national resource need and coordinate local cadastral needs with the State needs. Western Oregon has worked with this type of supervisory arrangement with no apparent problems.

ADDITIONAL COMMENTS FROM WYOMING DISTRICT MANAGERS

* The five year priority list of cadastral projects which the districts update each year is an indication of the needs for cadastral support within the district.

* We evaluated our five year cadastral needs and do not feel that there would be a significant cost savings to decentralize. The cadastral work load is in both resource areas and would require per diem and travel to accomplish much of it.

* The District Manager and Assistant District Manager, Operations have discussed the aspect of the proposal with John Lee. We see it as a positive step for management of District programs and could reinforce the benefits of professional cadastral support in these programs. The proposal also reflects the intent of the Director's downsizing efforts. At the present time, District budgets would not support the equipment and vehicle needs of a cadastral staff.

II. ANALYZE THE OPTIONS FOR LOCATION OF CADASTRAL SURVEYORS

A. Examine the advantages and disadvantages of the project office and the district office concept.

1. ADVANTAGES OF THE PROJECT OFFICE CONCEPT

The project office concept has worked very favorably within Wyoming. After a need was determined to resurvey 105 priority townships near Gillette, the project office was opened in 1986. This was the most logical approach to this task of resurveying the Powder River Basin as Gillette offered a central location from which resurveys could be conducted. To date 50% of the prioritized townships have been resurveyed with optimal progress being maintained. Budget constraints have slowed production in several FY's. We have reduced travel costs to almost zero barring special assignments and training. The surveyors stationed in Gillette have become a part of the community and are accepted by nearly all the major land owners. The surveyors in Gillette have an exemplary relationship with the local land surveying community and most surveyors are active in the state surveying societies and their functions. Veteran surveyors within the project office are adept to the local original survey conditions and seem to know what they will encounter before hitting the ground. Surveyors within the project office have and can access the field almost year round but to a lesser degree in the winter months. The availability of seasonal personnel has been excellent with the new hiring procedures. Survey corrections and problems can and are handled immediately. The interaction that takes place among 6-8 land surveyors in the office is very helpful in analyzing most survey situations. The availability of a seasoned and knowledgeable land surveyor as project manager has helped to expedite most difficult survey situations. Also, the open-line concept that Wyoming has nurtured for years, which allows access to the Field Supervisor and Review Section Supervisor, creates a strong environment of growth and professional development.

2. DISADVANTAGES OF THE PROJECT OFFICE CONCEPT

The disadvantages which Wyoming has encountered by having personnel in project offices is the basic feeling of isolation from the mainstream of the Bureau. Communications to other branches within the Bureau is difficult at times. There is a loss of opportunity for Bureau training offered at the SO and DO, consequently, this can inhibit managerial and professional growth. Personnel matters become difficult at times. Surveyors located in project offices acquire a tunnel vision syndrome whereby, the survey program becomes the only function of the Bureau. By placing all personnel in project offices you lose an advantage of having staffs ready to hit (hot spot) projects which occur.

Other disadvantages of the project office concepts are high start up costs. Start up costs involve office space leases, office furnishings, telecommunications, office equipment, change of duty station costs, vehicle, equipment costs, and administrative personnel salaries.

3. ADVANTAGES OF UTILIZING DISTRICT AND OR RESOURCE AREA OFFICES.

In addition to the items addressed under advantages to the project office concept the district office would offer additional advantages. Firstly, survey personnel would be brought back into the mainstream of the Bureau, this would help eliminate some of the disadvantages of the project office such as, training, communications, personnel matters, professional and managerial development.

Survey requests would be submitted to the SO after consultation and assessment with the District Surveyor. This would eliminate the need for extensive research and field investigations from the SO. Survey problems encountered at the district level would be handled within the district prior to SO involvement (this may come under unofficial survey support activities). Travel to areas within the districts jurisdiction would be decreased as travel distances should be minimal. Certain areas outside of a reasonable days drive could be worked on a Monday AM to Thursday PM schedule. Reimbursable projects could be accomplished with minimal travel costs.

The surveyor placed within districts could assist the DO staff with a variety of services to support all programs. Many of these support services have been addressed by the District Managers. District Managers from Worland, Casper, and Rock Springs have stated favorable support for in-house cadastral expertise.

Costs associated with placing surveyors within districts are a definite advantage. Once again, Worland, Casper, and Rock Springs have offered work space, storage, and parking areas for a cadastral staff. In addition these districts have offered administrative support.

Global Position Systems (GPS) for resource management purposes is becoming increasingly popular and will continue to be a valuable tool as applications emerge. GPS technology is in such a dynamic state that it is hard to project the extent of its future applications. GPS will continue to become an invaluable resource to the Bureau with numerous applications. As districts begin to utilize GPS it would be advantageous to have cadastral expertise readily available for technical support.

4. DISADVANTAGE OF UTILIZING DISTRICT AND/OR RESOURCE AREA OFFICES.

Disadvantages addressed under the first part of this plan include problems with supervisory controls, less communication with SO, and decreased field time due to unofficial survey activities. Many of these disadvantages relate to the project office concept but could be apparent at a district office location.

It has been observed that production numbers (miles and monuments) suffer to a certain extent when surveyors are located in permanent locations. Surveyors placed within districts can be distracted from their official duties while working on unofficial survey activities.

A problem of supervisory controls within the DO could be observed as a disadvantage. The states of Colorado and California have retained the supervisory controls of their survey personnel place within the districts. These states report no problems with this structure to date. Oregon has retained technical direction and guidance only over their surveyors placed within districts. Oregon has observed a lack of control over field activities. They have also encountered problems with work schedules, uncompleted jobs at times, and mixed assignments under this structure. It should be noted that the surveyors in Oregon's Districts are not funded by 4730 cadastral money.

Change of duty station costs will be incurred when placing surveyors in the district office.

III. DETERMINE THE DUTIES AND RESPONSIBILITIES OF THE CADASTRAL SURVEYOR IN A DECENTRALIZED SITUATION

A. Examine the duties and responsibilities of the land surveyor in a project office environment and a district office environment.

1. DUTIES AND RESPONSIBILITIES IN PROJECT OFFICE

The surveyors located in the Gillette Project Office at the GS-11 level have a position description defining their duties and responsibilities in a project office environment.

A copy of this description is attached and labeled as **(ATTACHMENT A)**

Surveyors within the Gillette Project Office are basically responsible for conducting cadastral surveys within the geographic limits of the Powder River Basin. Occasionally, a surveyor will be called upon to conduct cadastral surveys outside these geographic limits.

I. INTRODUCTION

This position is located within the Cadastral Field Section, Branch of Cadastral Survey, Division of Operations, Wyoming State Office, and is assigned to the Gillette Project Office. The position is both responsible for the conduct of field surveys and the completion of field notes in an office setting.

II. DUTIES

The incumbent of this position plans and conducts projects which require extensive study, search, and adaptation of records, history, and precedents. Assignments involve resolving problems caused by conflicting evidence as well as developing specific solutions to complex problems. Surveys assigned to this incumbent normally involve a mixture of the following complications on each individual survey: (1) problems caused by changing water courses or erroneous original meander lines; (2) distorted or fraudulent prior surveys; (3) obliterated, unrecoverable monuments; (4) extremely high property value; (5) actual or probable litigation; (6) conflicting land records and survey data; (7) etc.

A. Leads field crews in performing field surveys.

-- Makes crew assignments.
-- Trains crew members.
-- Maintains survey equipment.
-- Prepares travel vouchers, accident reports, weekly progress reports, time and attendance reports, etc.
-- Resolves grievances or refers them to other sources, etc.
-- Supports EEO program.
-- Makes necessary field purchases.
-- Ensures motor vehicle operations, maintenance, and reports.

B. Contacts property owners to obtain access to areas, to explain the survey, and to collect survey information. Tries to alleviate potential grievances in highly sensitive situations.

C. Investigates local records and discusses surveys with local residents to determine the importance of unusual findings and their relationship to his survey.

D. May be assigned to peruse county records to gather previous survey data, land ownership records, etc., to become a part of the survey record. May also contact local surveyors for information.

E. From the survey field notes, prepares the official survey notes and rough draft maps and charts. Makes professional decisions regarding the complications encountered based upon a knowledge of advanced surveying techniques, precedent cases, pending or newly resolved court actions, etc.

F. May be assigned upon occasion to prepare special instructions for proposed survey projects.

G. May be assigned to assist in reviewing completed survey field notes prior to their being forwarded to the Chief Cadastral Surveyor, Wyoming, for approval.

H. Employee responsibilities include the protection of BLM administered resources and property. During the course of routine duties the incumbent may be required to supply State Office law enforcement personnel with such assistance and documentation as necessary for prosecution of violations of Federal law and regulations occurring in his/her presence or of which he/she otherwise has knowledge.

III. KNOWLEDGE REQUIRED BY THE POSITION

A. Ability to lead and train survey crew members and complete administrative functions for crew members.

B. An extensive knowledge of surveying principles and practices, relevant laws and court decisions, advanced mathematics, and related subjects.

C. The ability to deal tactfully with landowners on a variety of potentially sensitive problems of concern to them due to the nature of the type of surveys assigned.

D. Ability to use, maintain, adjust, and train others to use surveying equipment and instruments (including transits with solar attachments, theodolites, electronic distance measuring units, etc.).

E. Ability to write field notes and survey instructions in a clear concise manner.

F. Must be capable of operating vehicles up to and including one ton capacity and have a valid state driver's license.

IV. SUPERVISORY CONTROLS

The incumbent works for the Gillette Field Station Manager but may receive assignments from, evaluation by, or assistance from the Deputy Field Station Manager dependent upon the assignment. Field surveys are assigned through the special instructions which indicate scope of survey, complications, coordinate available information from which to work, etc. Deviations from special instructions must be documented by amendments through the Station Manager. If the problem/solution is readily identifiable, the incumbent will contact the supervisor requesting an amendment. In other cases the supervisor, through phone contact or personal assistance, will be contacted to assist in working out the problems. Completed field assignments will be reviewed in depth for content, clarity, professional judgment, mathematical computations, etc.

The incumbent plans, coordinates, and conducts the field crews and performs necessary record searches independently.

V. GUIDELINES

Guidelines are available through the special instructions written for a given survey, the Manual of Surveying Instructions, precedent office files, etc.

Due to the variety of complex assignments the incumbent receives, the incumbent is required to use judgment in locating and selecting the appropriate guidelines for the specific problems encountered. As shown above, when guidelines are inadequate or there are deviations, from special instructions, they must be referred to the supervisor.

VI COMPLEXITY

The incumbent is normally assigned the more complex surveys which include various combinations of problems which require an assessment of the on-the-ground situation, the researching of available alternatives, and the recommendation of an approach to compensate for the problems encountered or to compensate for incomplete or conflicting data. As shown above, the incumbent does plan the actual work details.

VII. SCOPE AND EFFECT

The incumbent performs surveys affecting land status of individuals, private or federal agencies, etc. Many of the surveys do include investigating and/or analyzing unusual situations and devising alternative approaches.

VIII. PERSONAL CONTACTS

The incumbent contacts other BLM personnel within the State, with other agency personnel (USFS, USGS, BIA, Bureau of Reclamation, etc.), private landowners, private surveyors, county courthouse records people, etc. Most contacts are instigated by the incumbent.

IX. PURPOSE OF CONTACTS

Contacts range from explaining surveys, getting access, receiving records or general information, etc. Upon occasion the incumbent will be exposed to extremely hostile individuals/groups in sensitive situations.

X. PHYSICAL DEMANDS

The incumbent works both in an office and performs field duties. Office work is sedentary in nature where the incumbent may sit to do the work but is involved in some walking, standing, and bending to get references, supplies, etc. Field work requires physical exertion in standing, walking over rough surfaces, recurring bending and reaching activities, etc.

XI. WORK ENVIRONMENT

In field environment the incumbent is exposed to falls, inclement weather, etc.

2. DUTIES AND RESPONSIBILITIES IN DISTRICT OFFICE

The surveyor placed in a District Office will have expanded roles and responsibilities as he/she will be required to assist District personnel from all disciplines in a variety of cadastral matters.

An addition to the GS-11 Land Surveyor position description will include under DUTIES:

1. Serve as District cadastral surveyor in which incumbent will be required to supervise one or more survey crews as may be required.

2. Provide consultation and coordination for a variety of cadastral survey legal and technical issues to the District Manager and a multi-resource staff within the District and Resource Area Offices.

3. Provide technical guidance to a multi-resource staff on Global Positioning Systems (GPS) to accurately utilize GPS technology.

4. Review cadastral survey request with ASD Operations prior to submission to the SO for action.

5. Prepare draft Special Instruction and submit to SO for review and completion prior to the upcoming field season.

6. Project budget expenditures for a District survey program and participate in AWP planning.

7. Initiate all hiring procedures for seasonal personnel and resolve all personnel matters within staff.

The surveyor placed in a District Office would be responsible for all cadastral survey activities within the Districts geographic boundaries. This would include most reimbursable and FS projects.

III. DETERMINE THE DUTIES AND RESPONSIBILITIES OF THE CADASTRAL SURVEYOR IN A DECENTRALIZED SITUATION

B. Determine the supervisory controls required with a surveyor in a decentralized location.

The supervisory controls which exist in present project offices established in all states except Oregon are designed to maintain the unrestricted technical and administrative supervision of surveyors by surveyors. This type of structured supervision is essential in maintaining the technical and legal significance of all official Cadastral Surveys. The states with this supervisory structure report no adverse effects within their organizations.

Many states have cadastral surveyors located within other federal agencies offices without forfeiting a loss of administrative and technical supervision. Surveyors placed within districts offices can remain responsive to the districts needs while performing their official duties for that district and other agencies. Administrative and technical supervision to surveyors in decentralized locations must remain with Cadastral Survey.

III. DETERMINE THE DUTIES AND RESPONSIBILITIES OF THE CADASTRAL SURVEYOR IN A DECENTRALIZED SITUATION

C. Determine support activities and responsibilities of the surveyor in a district office.

Surveyors placed within project offices or district offices can be utilized for a variety of cadastral support activities. Unofficial survey activities would be inclusive to work performed without the issuance of Assignment/Special Instructions.

The Districts from Wyoming have outlined the areas in which they would require cadastral expertise. Support could be provided in a consultation and advisory role for a variety of problems involved in land management. Areas of support can include boundary line determination, corner search and location, recreation access, occupancy trespass, mineral sale location, hazardous waste site location, and easements. Other programs which could utilize the cadastral expertise are Lands, Recreation, Wildlife, Minerals, Range, Engineering, and Law Enforcement.

The magnitude of support functions required would vary from district to district. States that have placed surveyors within districts have reported an average of 1-10% time working on unofficial survey activities.

Unofficial survey activities will be coordinated with the Branch of Cadastral Survey. If extensive work was required on unofficial survey activities the benefitting subactivity could fund the surveyor's time.

III. DETERMINE THE DUTIES AND RESPONSIBILITIES OF THE CADASTRAL SURVEYOR IN A DECENTRALIZED SITUATION

D. Determine the funding for project office or district surveyor.

Project offices in the states queried work under a combination of funds. Surveyors located in district offices and some project offices in other states work primarily under 4730 funding, while other project offices are established to conduct reimbursable surveys only. Many project offices work under a mixed bag of funding. For example, in FY 90 the Weaverville Field Unit, California had a total budget of approximately $381,416, of this $81,600 was 4730, $89,816 was FS 9800, $180,000 was BIA 4950, and $30,000 was 7123.

Surveyors located in the project office in Wyoming are funded primarily by the 4730 subactivity with some funding available for special assignments.

Surveyors located within Districts in Wyoming would be funded primarily by 4730 with 9800 and reimbursable funds, the amount of reimbursable funding would vary in a given FY. It is also possible that certain (non-official) BLM survey activities could be funded by a subactivity on a limited basis.

IV. FINDINGS AND ANALYSIS

A. This portion of the plan will consist of a projection of travel cost savings.

Traditionally, a mobile crew sent from the SO would hire the temporary work force prior to beginning field activities. At the beginning of the field season mobile crews leave the SO to begin their survey activities at a given geographic location and as projects are completed move to other areas. Travel costs would begin at the start of the field season with the crew remaining in travel status for the entire duration.

The project office concept in Wyoming established a permanent base near the required work, and all survey activities are performed on a daily basis with no travel costs incurred. The project office also hires all temporary employees locally.

The district office concept would be similar to the project office in that a majority of the survey work could be accomplished without travel costs. Reimbursable work conducted from a district office could be conducted with or without travel costs. Survey projects conducted within the district that would require travel could be conducted on a (4-10 hour days schedule) with travel cost required for 7 days per pay period. An alternative schedule which has become popular when in travel status is the (8 days on, 6 days off schedule) this would require travel costs of 7 days per pay period, with a Sunday differential cost.

A. Travel cost savings.

Cost comparison, SO mobile crew vs project office crew.

SO MOBILE CREW WORK MONTH

3 person crew

Per diem	30 days	@	3 employees	@	$26	=	$2340
Lodging	30 days	@	3 employees	@	$40	=	$3600
			SUBTOTAL TRAVEL COSTS				**$ 5940**
Salaries	1	@	GS-11			=	$2600
Salaries	1	@	GS-5			=	$1420
Salaries	1	@	GS-3			=	$1130
			TOTAL WKM COST			=	**$11,288**

PROJECT OFFICE CREW NO TRAVEL WORK MONTH

3 person crew

			SUBTOTAL TRAVEL COSTS				**$ 0000**
Salaries	1	@	GS-11			=	$2600
Salaries	1	@	GS-5			=	$1420
Salaries	1	@	GS-3			=	$1130
			TOTAL WKM COST			=	**$5150**

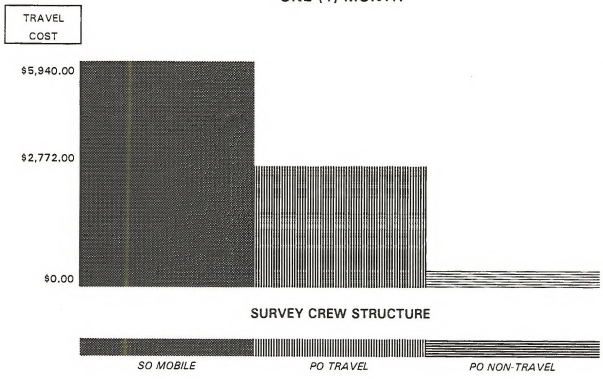
A. Travel cost savings

PROJECT OFFICE CREW IN TRAVEL STATUS WORK MONTH

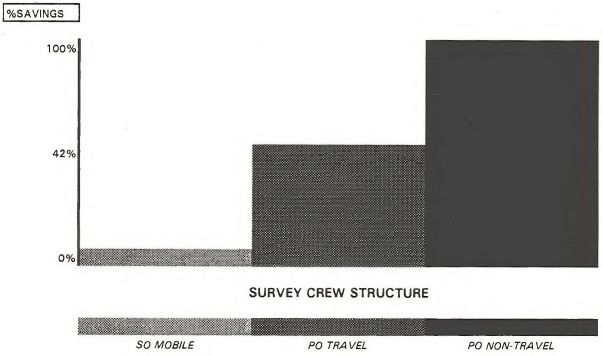
3 person crew

Per diem	14 days	@	3 employees	@	$26	=	$1092
Lodging	14 days	@	3 employees	@	$40	=	$1680
			SUBTOTAL TRAVEL COSTS				**$ 2772**
Salaries	1	@	GS-11			=	$2600
Salaries	1	@	GS-5			=	$1420
Salaries	1	@	GS-3			=	$1130
			TOTAL WKM COST			=	**$ 7,922**

TRAVEL COSTS 3 PERSON CREW ONE (1) MONTH



TRAVEL COST SAVINGS



ATTACHMENT B

IV. FINDINGS AND ANALYSIS

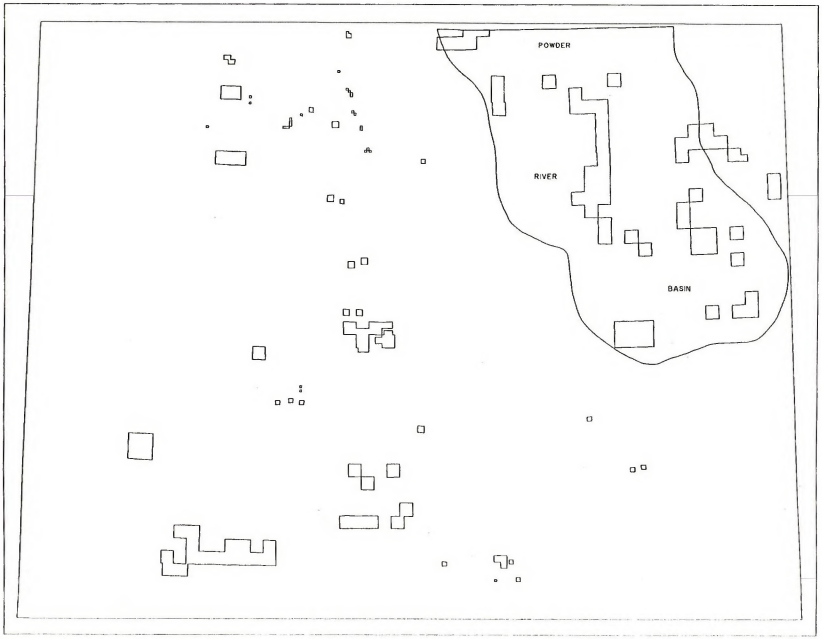
B. Determine the District survey requests, benefitting activities, and acreage.

All districts have submitted their FY 92-96 Survey Requests. The map **(ATTACHMENT C)** represents the District Survey Requests for Wyoming FY 92-96. The chart below displays the number of survey request and acreage for FY 92-96. The survey requests are required to support a variety of activities, the Rawlins District currently has prioritized boundary determination, trespass, seismograph, range, oil and gas, and timber sales. The Worland District currently has prioritized recreation, cultural resources, range management, agriculture trespass, and lands in their requests. Rock Springs requests are primarily to support oil and gas exploration and land boundary in the checkerboard areas. Casper District has requests primarily in Federal subsurface areas needed to support oil, gas, and minerals.

District Survey Requests FY 92-96

DISTRICT	NUMBER OF REQUESTS	ACREAGE REPRESENTED
Rawlins	43	445,440
Worland	47	168,960
Rock Springs	23	529,920
Casper	60	1,382,400
	TOTAL ACREAGE	**2,526,720**

DISTRICT SURVEYS REQUESTS (92-96)



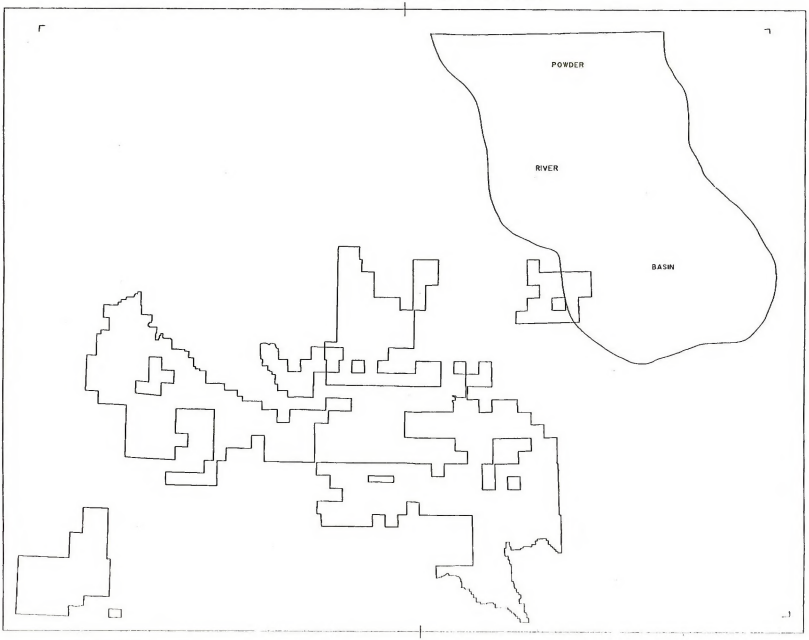
ATTACHMENT C

IV. FINDINGS AND ANALYSIS

C. Determine the long range survey needs in Wyoming.

In addition to the current district survey requests there is an extensive amount of public land which has been originally surveyed in need of dependent resurvey. These areas are located in the central, south central, southwest, and west central portions of the state, with scattered blocks located in most parts of the state. **(ATTACHMENT D)** We also have areas in the Big Horn Basin and the Rock Springs area which have been resurveyed by the GLO (pre 1946) containing iron monuments that are rapidly deteriorating due to the soil conditions. Cadastral Resurveys are required in approximately 200 townships in the northeastern portion of the state (POWDER RIVER BASIN) to support Federal subsurface activities. Cadastral Survey is also responsible for land boundary determination for extensive areas of Forest Service lands, BIA, Park Service, and Bureau of Reclamation boundaries throughout the state.

50% FEDERAL SURFACE NOT RESURVEYED



ATTACHMENT D

IV. FINDINGS AND ANALYSIS

D. Determine the number of District survey requests that have been completed.

This portion will examine the comparison of survey requests with completed cadastral surveys by district. I have obtained the number of cadastral surveys completed by District for a six year period FY 86-91, and the survey requests from FY 86-91. This comparison is accurate to project future trends as it reflects the basic crew structure that we have been using since 1986.

DISTRICT	REQUESTS 86-91	SURVEYED 86-91	COMPLETION 86-91
Rawlins	187	9	4.8%
Worland	169	4	2.4%
Rock Springs	101	7	7.0%
Casper	60	57	95.0%

IV. FINDINGS AND ANALYSIS

E. Summary of findings and analysis.

At the current staff and structure it is apparent that Cadastral Survey cannot sustain the current District survey requests while providing Public Land Survey services to the other interested Federal Agencies within Wyoming's jurisdiction.

The need to provide cadastral resurveys for the Casper District in Wyoming's Powder River Basin to support oil, gas, and mineral programs was identified in the early 1980's. In 1986, Cadastral Survey opened the Gillette Project Office. The Gillette Project Office has proved to be an excellent example of how Cadastral Survey can identify the problem, develop a plan and expedite the mission. To date we have completed 95% of the yearly survey requests for the Casper District.

As the Gillette Project Office has proven to be a tremendous success, it has also become apparent that the other Districts within Wyoming have suffered the consequences. Without adequate funding or manpower to support all district survey needs, we conduct as many surveys as possible for the remaining districts on a rotational basis. Based on the statistics provided, we were able to prepare and complete 4.8% of the requested groups for the Rawlins District, 2.4% for the Worland District, and 7.0% for the Rock Springs District. Based upon this data it is evident we need to consider a decentralization and an increase in manpower to support District Survey requests.

The mobile crew in the Wyoming State Office should be retained to preserve our reimbursable commitments to other agencies. The mobile crew will also support the remainder of the State's District requests until the decentralization plan is fully implemented. Following FY '94, it is possible that the SO could continue operations with one mobile crew. The significance of the Powder River Basin Resurveys dictate that we continue to progress with the Gillette Project Office at full staff.

IV. FINDINGS AND ANALYSIS

The need for cadastral surveys are overwhelming as affirmed by all Districts. All of the District Managers recognize the need for Cadastral expertise within their districts. Three of the four District Managers would be favorable to providing office space, administrative support, and storage for a Cadastral crew. The states and district personnel involved in this study with district surveyor structures are pleased with the results. The travel costs savings incurred with this type of structure reflect a 100% savings when surveys are performed within reasonable driving distance in the District, and 42% savings when travel is required within the District. This type of structure will enhance relationships of the Cadastral staff with District personnel, local surveyors, and other Federal clients. We can expect a higher quantity and quality of survey returns, and an extended period of field operation. Cadastral can provide continuous support for all District programs in both an official and advisory capacity. With the Directors current emphasis on placing more personnel in the Districts, it is an excellent opportunity to implement this plan.

V. PROPOSAL

Based upon my research and analysis, following extensive consultation with the Branch Chief, Field Section Chief, and Office Section Chief, I propose starting immediately (FY 92), we begin placing Cadastral Surveyors in District Offices. I will support this proposal by providing the following information required to expedite implementation of this plan. The following information will be outlined in the remainder of this report.

A. Schedule of implementation and locations.

B. Schedule of funding requests and start-up costs.

C: Revised Table of Organization for the Field Section

D: Revised position description for a District Surveyor.

V. PROPOSAL

A. Beginning immediately (FY 92), we will place a GS-1373-11/12 Land Surveyor in the Rock Springs District Office to support all cadastral survey activities. In (FY 93), we will place a GS 1373-11/12 Land Surveyor in the Worland District Office. In (FY 94), we will place a GS-1373-11/12 in the Rawlins District Office. The Casper District will continue to be supported by the Gillette Project Office staff until priorities dictate placement of a Land Surveyor in the District or movement of the Gillette Office to cover the geographies of the Powder River Basin Resurvey.

1. FY 92 Rock Springs District

2. FY 93 Worland District Office

3. FY 94 Rawlins District Office

Initially, the District Surveyors will begin to expedite the priority survey requests for the Districts. If it becomes apparent that we are not progressing in a timely matter or if priorities change drastically, we will consider placing additional positions within the Resource Areas of the Districts with the District Surveyor retaining supervisory responsibilities for the Resource Area surveyors activities.

V. PROPOSAL

B. The additional funding required in FY 92-94, would be needed for a (one time) start-up cost for vehicles, survey equipment, and permanent change of duty station costs. The funding to maintain these positions would be required for salaries, monuments, vehicle costs, travel, and training, with budget increases through FY 94. The overall budget increase through FY 94, after the one-time start up cost would be $220,035 which would reflect a 25% overall increase in budget over a 3 year period.

1. **FY 92 START-UP COSTS ROCK SPRINGS DISTRICT**

A.	2 VEHICLES	$ 40,000
B.	SURVEY EQUIPMENT	$ 40,000
C.	PCS (NON 4730)	$ 25,000
	TOTAL	**$105,000**

2. **FY 92 PROGRAM COSTS**

A.	GS-1373-11/12 (6 MONTHS)	$ 19,430
B.	GG-0817-05 (6 MONTHS)	$ 8,843
C.	GG-0817-03 (6 MONTHS)	$ 7,041
D.	300 MONUMENTS	$ 6,000
E.	VEHICLE COSTS (2 VEHICLES)	$ 7,000
F.	2 MONTHS TRAVEL	$ 5,600
	TOTAL	**$ 53,914**

3. **ADDITIONAL FUNDS REQUIRED FOR FY 92**

A.	START-UP COSTS	$105,000
B.	FY 92 PROGRAM COSTS	$ 53,914
	TOTAL	**$158,914**

V. PROPOSAL

4. **FY 93 START-UP COSTS WORLAND DISTRICT**

A.	2 VEHICLES	$ 40,000
B.	SURVEY EQUIPMENT	$ 40,000
C.	PCS (NON 4730)	$ 25,000
	TOTAL	**$105,000**

5. **FY 93 PROGRAM COSTS**

A.	GS-1373-11/12	$ 38,861
B.	GG-0817-05 (6 MONTHS)	$ 8,843
C.	GG-0817-03 (6 MONTHS)	$ 7,041
D.	300 MONUMENTS	$ 6,000
E.	VEHICLE COSTS (2 VEHICLES)	$ 7,000
F.	2 MONTHS TRAVEL	$ 5,600
	TOTAL	**$ 73,345**

6. **ADDITIONAL FUNDS REQUIRED FOR FY 93**

A.	START-UP COSTS	$105,000
B.	FY 92 PROGRAM COSTS	$ 73,345
	TOTAL	**$178,345**

V. PROPOSAL

7. **FY 94 START-UP COSTS RAWLINS DISTRICT**

A.	2 VEHICLES	$ 40,000
B.	SURVEY EQUIPMENT	$ 40,000
C.	PCS (NON 4730)	$ 25,000
	TOTAL	**$105,000**

8. **FY 94 PROGRAM COSTS**

A.	GS-1373-11/12	$ 38,861
B.	GG-0817-05 (6 MONTHS)	$ 8,843
C.	GG-0817-03 (6 MONTHS)	$ 7,041
D.	300 MONUMENTS	$ 6,000
E.	VEHICLE COSTS (2 VEHICLES)	$ 7,000
F.	2 MONTHS TRAVEL	$ 5,600
	TOTAL	**$ 73,345**

9. **ADDITIONAL FUNDS REQUIRED FOR FY 94**

A.	START-UP COSTS	$105,000
B.	FY 92 PROGRAM COSTS	$ 73,345
	TOTAL	**$178,345**

V. PROPOSAL

10. **ADDITIONAL FUNDING REQUIRED FY 92-94**

A.	FY 92 START-UP COSTS	$105,000	
B.	FY 92 PROGRAM COSTS	$ 53,914*	
	PERMANENT INCREASE		$ 73,345
C.	**FY 92 INCREASE**	**$158,914**	
D.	FY 93 START-UP COSTS	$105,000	
E.	FY 93 PROGRAM COSTS	$ 73,345	
	PERMANENT INCREASE		$ 73,345
F.	**FY 93 INCREASE**	**$178,345**	
G.	FY 94 START-UP COSTS	$105,000	
H.	FY 94 PROGRAM COSTS	$ 73,345	
	PERMANENT INCREASE		$ 73,345
I.	**FY 94 INCREASE**	**$178,345**	

J. OVERALL FUNDING INCREASE AFTER START-UP COST $220,035

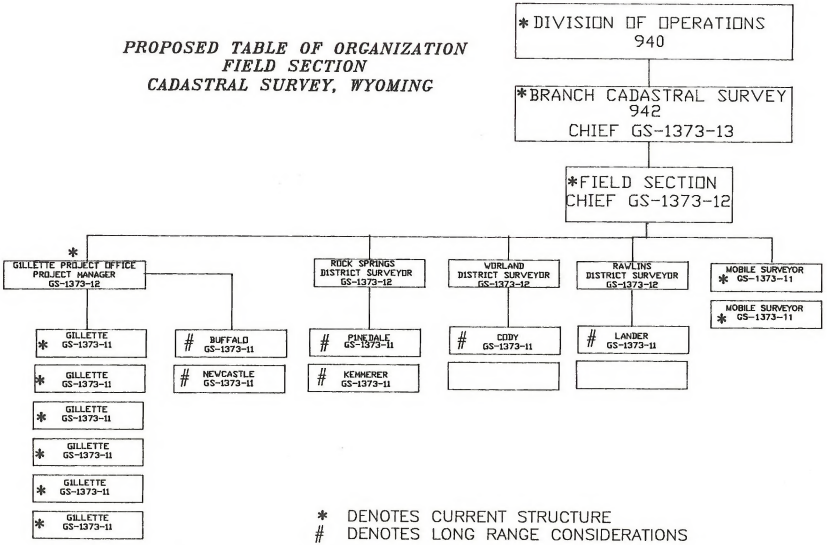
* 6 MONTH SALARY FOR LAND SURVEYOR

V. PROPOSAL

C. The revised Table of Organization (**ATTACHMENT E**) reflects the current proposal to begin placing Cadastral Surveyors in the Districts through FY 94. It also depicts long range considerations for Resource Area Offices if it becomes necessary. The revised TO does not take into consideration any future reimbursable project offices as may be necessary.

ATTACHMENT E

PROPOSED TABLE OF ORGANIZATION
FIELD SECTION
CADASTRAL SURVEY, WYOMING



* DENOTES CURRENT STRUCTURE
\# DENOTES LONG RANGE CONSIDERATIONS

V. PROPOSAL

D. As discussed in Section III., the District Surveyor position would require an expanded area of duties and responsibilities a revised District Surveyor, Position Description follows as **(ATTACHMENT F)**.

I. **INTRODUCTION**

The function of the Branch of Cadastral Survey within the Division of Operations is to create, reestablish, mark, and define boundaries of all public lands of the United States within the State of Wyoming, and to prepare and maintain all applicable official records for this activity. The Branch is also currently charged with the development and maintenance of the Geographic Coordinate Data Base for the entire state and are relied upon as the technical experts in the utilization, operation and limitations of Global Positioning Systems technologies. This position is in the Cadastral Field Section, is permanently assigned to the _____ District Office, and has the responsibility for the execution of surveys and preparation of the records thereof including the supervision of up to three field survey crews. Incumbent also provides technical expertise to all district and resource area personnel with all legal and technical issues involving Cadastral surveys and the operation and utilization of Global Positioning Systems.

II. **MAJOR DUTIES**

Plan and conduct cadastral projects of considerable scope and variety, many with extensive complications. These projects normally require extensive study and research of historical survey and land records and the necessary adaptation of court decisions and approved precedents. Responsible for the reviews and checks of the field data and the preparation of the returns thereof. Responsible for directing, planning and managing the activities of the district survey staff.

Coordinate field survey activities with _____ District personnel, officials of other government agencies, and with private individuals when working boundary line surveys. Gaining written permission to enter upon private lands is often required in retracement problems.

Provide consultation and coordination for all Cadastral Survey legal and technical issues to the District Manager and a multi-resource staff within the District and Resource Area Offices. Assist in program development and AWP estimates relating to field operations.

Provide technical expertise to district and resource area personnel on the utilization, operation and limitations of Global Positioning Systems and the Geographic Coordinate Data Base.

Responsible for recovery and evaluation of existing survey monuments and reference objects. Determine where obliterated corners previously existed by study of records and on-the-ground evidence. Must be able to correlate and evaluate the evidence which is often complex and poorly defined and reach correct conclusions. Perform cadastral office work and reconcile

cadastral surveys and topographic or planimetric maps where older cadastral work of varying accuracy is involved.

Direct survey crews in conducting cadastral surveys or resurveys necessary to determine the correct location of specific land corners and/or lines. Such surveys are required to identify the boundaries of federal interest lands in support of coal, oil, and gas leasing, rights-of-way, range improvements and recreation areas.

Prepare technical material including field notes and plats, recovery records, property descriptions by aliquot and metes and bounds methods, project reports, field investigations and recommendations.

Direct the assembling of data for the research necessary to produce special instructions for new surveys and is responsible for preparation of the diagrams that serve as the principal technical guide in the execution of cadastral surveys. This includes the compilation of all available data on record.

Prepare written or verbal responses to the public, State of Wyoming Land Commission, private surveyors, and other federal offices on technical inquiries concerning interpretation of past and present land surveys within the _____ District. Use existing or self-prepared computer programs to solve complex land boundary problems, convert horizontal control data to other coordinate systems, and analyze land records to confirm methods used in resurveys. Determine survey locations by analytic, traverse, or photogrammetric methods as appropriate.

As the local representative of the Branch of Cadastral Survey, this person will be the the local contact for other Federal agencies and private surveyors. It will be necessary to build and maintain a good working relationship with these people and provide cadastral survey expertise and available information.

It is necessary that decisions be made on depicting the legal limits of boundaries of rights and ownership. Each decision requires the weighing of evidence found in the new survey in addition to the normal abstracting of often numerous records obtained from a variety of sources. Must be familiar with how to obtain records used whether they are from archival sources or currently used records of Federal, state, or county agencies; private companies; or private surveyors.

Researches the various records of the counties, State Land Commission, State Planning Office, Bureau of Land Management, and other Federal agencies for material which may relate to or affect government lands and adjoiners. Examples of data sought and examined are grant and quitclaim deeds, record of survey and subdivision plats, mortgage and homestead records in the county recorder's office; court judgments and probate records; road and survey records in the county clerk's office; cadastral survey and

patent records in the State Land Commission and Bureau of Land Management record offices; status records and survey information from other Federal agency offices. Easements, rights-of-way, covenants, and reservations must also be examined.

The final determination regarding the delineation of public lands must be well versed in the land decisions and court findings governing the public land line system of the nation and bear up under close scrutiny and criticism to which the resulting documents are subject. Analyzes and interprets the legal significance of any items of title or encumbrance disclosed by the research and prepares reports for transmittal through his supervisor to the Chief, Division of Cadastral Survey, Washington Office, Bureau of Land Management, or to the Attorney-in-Charge, Department of the Interior, for proper guidance.

The Bureau's program is specifically planned to concentrate on surveys of boundaries that are not readily identifiable or are in dispute; therefore, extreme care, tact, good judgment, and precise survey work will be required in every phase of boundary establishment in order to avoid unfavorable relationships or costly court actions between the Bureau and adjoining owners of private land. The incumbent must have a thorough understanding of Federal and state laws governing surveys and subdivisions of both public and private lands.

Responsible for recruitment and selection of all cadastral personnel within _____ District Office and all personnel management responsibilities such as awards, promotions, EEO, employee relations, performance reviews, etc.

Employee's responsibilities include the protection of BLM administered resources and property. During the course of routine duties, the incumbent may be required to supply State Office law enforcement personnel with such assistance and documentation as necessary for prosecution of violations of Federal law and regulations occurring in his/her presence or of which he/she otherwise has knowledge.

Is assigned leadership in field safety procedures. The hazards the field crews are exposed to are more severe than for other occupations in BLM and demand continuing ingenuity and effort in order to maintain acceptable safety standards.

Exercises limited purchasing authority for the procurement of necessary field items. Signs and submits time and attendance reports, progress reports, and other documents necessary to cadastral field operations. Reviews for accuracy documents such as travel vouchers, etc.

III. **FACTORS**

1. Knowledge Required by the Position

A thorough knowledge of the current Manual of Instructions for the Survey of the Public Lands of the United States.

A thorough knowledge of the principles of land surveying and experience in exercising professional judgement in selecting proper methods to resolve complex survey problems.

A thorough knowledge of the angular and linear measuring instruments used in surveying.

A thorough knowledge, background, and understanding of the fragmentary evidence of original corners that must be interpreted to correctly restore original surveys and remonument corner points.

A thorough knowledge of the principals of managerial leadership, including AWP preparation and procedures, EEO goals, and Performance Improvement and Progress Review system.

A thorough knowledge of the principles of organizational and planning necessary to execute cadastral surveys.

A thorough knowledge of the computational procedures and mathematics used in surveying, including mathematical closures, corner position computations, astronomical observations and the utilization of Cadastral Measurement Management software.

A knowledge of the quality and quantity of training requirements of subordinates.

A knowledge of sound safety practices.

A knowledge of the use of aerial photos and various topographic and forest type maps.

A thorough knowledge of the methods and format of field note and plat preparation.

A knowledge of regulations and requirements for procurement, records systems, travel vouchers, progress reports, time and attendance reports, financial management system, and any other documents pertinent to the District Cadastral program.

A knowledge of the principles and practices of geodesy and geodetic control survey standards as they pertain to horizontal control for the Public Land Survey System.

A knowledge of Global Positioning System technology applications and limitations.

2. Supervisory Controls

Responsible to the Field Section Chief, Branch of Cadastral Survey. Technical guidance is mostly from established guidelines and procedures or standards and is totally free from everyday instructions. In the field guidance is provided through a set of special instructions, but primarily follows the procedures as outlined in the Manual of Surveying Instructions. Is expected to function on own initiative.

Directs and coordinates the activities of all cadastral personnel within the district and resource areas. Such responsibility is assumed on a varying schedule with the incumbent normally performing the following: plans and assigns subordinates' work; reviews work and accepts, amends, or rejects work based on professional standards; evaluates performance (quality and quantity of work) of subordinates and gives advise, counsel or instruction on work and administrative matters; hears and resolves complaints and effects minor disciplinary measures.

Ensures equal opportunity for all employees under supervision in the selection of employees for training, promotions, awards, recognition, and other career development opportunities.

3. Guidelines

Professional judgement and sound interpretation of the Manual of Surveying Instructions for the Survey of the Public Lands of the United States in addition to applicable public land laws and Bureau regulations and policy guidelines. Assignment and Special Instructions are issued to ensure adherence to applicable guidelines and that the public interest is protected to the optimum. Interpretation of judicial actions and IBLA decisions must bare on classes of land and survey procedure.

4. Complexity

The incumbent is normally assigned the more complex surveys which include various combinations of problems which require an assessment of the on-the-ground situation, the researching of available alternatives, and make the determination of an approach to compensate for the problems encountered or to compensate for incomplete or conflicting data. These decisions are independent of direct supervision and should be based on sound professional judgement and a thorough knowledge of land law. The incumbent is also relied upon by the district and resource area personnel for technical expertise on all survey and GPS related legal issues involving Public Land management. Assignments also include interagency coordination necessary to execute surveys for other Federal agencies.

5. Scope and Effect

The location and/or determination of all land boundaries is very critical and subject to close public scrutiny, it is imperative that all surveys are executed properly to circumvent extensive litigation. Cadastral surveys directly control the boundaries and acreage for oil, gas and coal leases, timber sales, recreation, mining, rights-of-way, resource management, etc. All surveys must protect the bona fide rights of private land owners and are subject to possible protest and appeal. Legal action resulting from an improper survey is usually very costly to both the private parties and the government. Normal assignments have surveys with very difficult technical and administrative problems, proper coordination and execution greatly enhances productivity, accuracy of the survey and the final product.

6. Personal Contacts

Contacts with District personnel, state office personnel, county surveyors, professional land surveyors and engineers, state and county government officials, local land owners, general public and various professional and business people.

7. Purpose of Contacts

The purpose of the contacts is to give or receive information on surveys, exchange or clarify information, and tactfully maintain good public relations. Contacts are in person, by telephone and in writing.

8. Physical Demands

The field work requires considerable and strenuous physical exertion such as withstanding harsh climatic changes involving high exposure, discomfort, strenuous walking and climbing, carrying loads up to 40 pounds, using hand and power cutting and digging tools which requires dexterity, agility and equilibrium. Driving 4-wheel drive vehicles through hazardous areas and for long periods on all road surfaces.

9. Work Environment

Work involves regular and recurring exposure to potentially dangerous or hazardous situations, such as working on steep rocky ground where danger of slipping is a constant factor. Some areas pose danger from poisonous reptiles, wind-thrown debris, and hostile local land owners. Office work is the normal office routine except for some drafting requirements.